

CHICAGO
Electric® Power Tools

GAS HANDHELD CUT-OFF SAW

Model 66753

SET UP, OPERATING, AND SERVICING INSTRUCTIONS



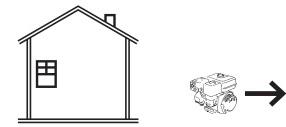
DANGER

Using an engine indoors CAN KILL YOU IN MINUTES.

Engine exhaust contains carbon monoxide. This is a poison you cannot see or smell.



NEVER use inside a home or garage, EVEN IF doors and windows are open.



Only use OUTSIDE and far away from windows, doors, and vents.

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**Read this material before using this product.
Failure to do so can result in serious injury.
SAVE THIS MANUAL.**

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For technical questions or replacement parts, please call 1-800-444-3353.

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SAVE THIS MANUAL

Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

IMPORTANT SAFETY INFORMATION

In this manual, on the labeling, and all other information provided with this product:



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



DANGER DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

CAUTION

CAUTION, without the safety alert symbol, is used to address practices not related to personal injury.



WARNING! Read all instructions. Failure to follow all instructions listed below may result in fire, serious injury and/or DEATH.

The warnings and precautions discussed in this manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

SAVE THESE INSTRUCTIONS

SET UP PRECAUTIONS

1. Gasoline fuel and fumes are flammable, and potentially explosive. Use proper fuel storage and handling procedures. Do not store fuel or other flammable materials nearby.
2. Have multiple ABC class fire extinguishers nearby.
3. Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrestor may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.
4. Set up and use only on a flat, level, well-ventilated surface.

5. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during set up.
6. Use only oil and fuel recommended in the "Specifications" section of this manual.

OPERATING PRECAUTIONS

1.

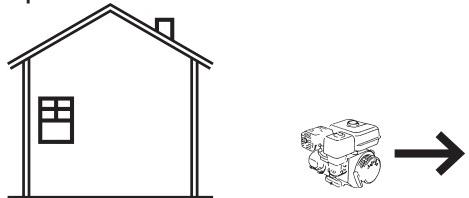


**CARBON MONOXIDE
HAZARD**
**Using an engine indoors
CAN KILL YOU IN
MINUTES.**

Engine exhaust contains carbon monoxide. This is a poison you cannot see or smell.



NEVER use inside a home or garage, EVEN IF doors and windows are open.



Only use OUTSIDE and far away from windows, doors, and vents.

2. Keep children away from the equipment, especially while it is operating.
3. Do not leave the equipment unattended when it is running. Turn off the equipment (and remove safety keys, if available) before leaving the work area.
4. Wear ANSI-approved safety goggles and hearing protection during use.

5. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to a heart pacemaker could cause pacemaker interference or pacemaker failure. Caution is necessary when near the engine's magneto or recoil starter.

6. Use only accessories that are recommended by Harbor Freight Tools for your model. Accessories that may be suitable for one piece of equipment may become hazardous when used on another piece of equipment.

7. Do not operate in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust. Gasoline-powered engines may ignite the dust or fumes.

8. Stay alert, watch what you are doing and use common sense when operating this piece of equipment. Do not use this piece of equipment while tired or under the influence of drugs, alcohol or medication.

9. Do not overreach. Keep proper footing and balance at all times. This enables better control of the equipment in unexpected situations.

10. Use this equipment with both hands only. Using equipment with only one hand can easily result in loss of control.

11. Dress properly. Do not wear loose clothing or jewelry. Keep hair, clothing and gloves away from moving parts. Loose clothes, jewelry or long hair can be caught in moving parts.

12. Parts, especially exhaust system components, get very hot during use. Stay clear of hot parts.

13. Do not cover the engine or equipment during operation.
14. Keep the equipment, engine, and surrounding area clean at all times.
15. Use the equipment, accessories, etc., in accordance with these instructions and in the manner intended for the particular type of equipment, taking into account the working conditions and the work to be performed. Use of the equipment for operations different from those intended could result in a hazardous situation.
16. Do not operate the equipment with known leaks in the engine's fuel system.
17. This product contains or, when used, produces a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. (California Health & Safety Code § 25249.5, *et seq.*)
18. When spills of fuel or oil occur, they must be cleaned up immediately. Dispose of fluids and cleaning materials as per any local, state, or federal codes and regulations. Store oil rags in a bottom-ventilated, covered, metal container.
19. Keep hands and feet away from moving parts. Do not reach over or across equipment while operating.
20. Before use, check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the equipment's operation. **If damaged, have the equipment serviced before using.** Many accidents are caused by poorly maintained equipment.
21. Use the correct equipment for the application. Do not modify the equipment and do not use the equipment for a purpose for which it is not intended.

CUT-OFF SAW SAFETY PRECAUTIONS

1. Never use carbide-tipped, woodcutting, or circular machine Saw Blades. They can cause severe personal injury from reactive forces, blade contact, or thrown objects.
2. Only cut asphalt, concrete, stone, brick, and plastics with this Cut Off Saw.
3. Inspect the Saw Blade frequently, and replace immediately if the Blade is cracked, or warped. Cracked or warped Saw Blades may shatter or break and cause serious personal injury.
4. **Always install the Saw Blade so that the arrow on the Blade points in the direction of the rotation of the spindle.**
5. **Keep hands and fingers away from the cutting area and Saw Blade.**
6. **Never attempt to cut more than one workpiece at a time.**
7. **When cutting a large workpiece, make sure its entire length is properly supported.** If necessary, use a roller stand (not included).
8. **Allow the Saw Blade to spin up to full speed before feeding it into a workpiece.** When turning off the Cut Off Saw, allow the Saw Blade to spin down and stop on its own. Do not

- press against the Saw Blade to stop it.
9. **Do not force the Saw Blade into the workpiece when cutting.** Apply moderate pressure, allowing the Saw Blade to cut without being forced.
 10. **To avoid accidental injury, always wear heavy duty work gloves when changing the Saw Blade.**
 11. **The Saw Blade will become hot while cutting.** Allow the Saw Blade to completely cool before handling.
 12. **Turn off the Cut Off Saw and allow the Saw Blade to completely stop if the Saw Blade is to be backed out of an uncompleted cut.**
 13. **Never attempt to remove material stuck in the Cut Off Saw while it is operating.**
 14. **Always use the water cooling system when cutting concrete to avoid inhalation of dangerous dust particles.**
 15. **Make sure the workpiece is free from nails, metal rebar, and any other foreign objects that could damage the Saw Blade or cause "kickback".**
 16. **Causes and operator prevention of "kickback":** Kickback is a sudden reaction to a pinched, bound, or misaligned Saw Blade, causing an uncontrolled Cut Off Saw to lift up and out from the workpiece toward the operator. When the Saw Blade is pinched or bound tightly by the cut closing down, the Saw Blade stalls and the engine reaction drives the Cut Off Saw rapidly back toward the operator. If the Saw Blade becomes

twisted or misaligned in the cut, the teeth at the back edge of the Saw Blade can raise the Cut Off Saw (walk up) toward the operator. Kickback is a result of tool misuse and/or incorrect operating procedures or conditions and can be avoided by taking proper precautions as given below:

- **Maintain control of the Cut Off Saw at all times.** Never allow the rotating Saw Blade to rest on the workpiece without holding on to the Saw with both hands.
- **When the Saw Blade is binding, or when interrupting a cut for any reason, turn off the Cut Off Saw and hold the Saw motionless until the Saw Blade comes to a complete stop.** Never attempt to remove the Saw Blade from the workpiece or pull the Saw backward while the Saw Blade is in motion or kickback may occur. Investigate and take corrective actions to eliminate the cause of Saw Blade binding.
- **When restarting the Cut Off Saw on a workpiece, center the Saw Blade in the pre-cut opening and check that the Saw Teeth are not engaged into the workpiece.** If the Saw Blade is binding, the Cut Off Saw may walk up or kickback as the Saw is restarted.
- **Support large panels with roller stands (not included) to minimize the risk of Saw Blade pinching and kickback.** Large panels tend to sag under their own weight. Supports must be placed under the panel and near the outer edge of the panel.

- **Do not use a dull or damaged Saw Blade.** Unsharpened or improperly installed Saw Blades produce a narrow cut causing excessive friction, Saw Blade binding and kickback.
 - **Push the Saw Blade past the workpiece prior to release.**
 - **Make sure to check the Blade Guard for proper operation.** Never disable the Guard. Do not use the Cut Off Saw if the Guard assembly does not operate properly. Before each use, make sure the Blade Guard does not touch the Saw Blade.
- hands and fingers, increasing the risk of vibration-related injury.
3. Wear suitable gloves to reduce the vibration effects on the user.
 4. Use tools with the lowest vibration when there is a choice between different processes.
 5. Include vibration-free periods each day of work.
 6. Grip tool as lightly as possible (while still keeping safe control of it). Let the tool do the work.
 7. To reduce vibration, maintain the tool as explained in this manual. If any abnormal vibration occurs, stop use immediately.

Vibration Hazard:

This tool vibrates during use. Repeated or long-term exposure to vibration may cause temporary or permanent physical injury, particularly to the hands, arms and shoulders. To reduce the risk of vibration-related injury:

1. Anyone using vibrating tools regularly or for an extended period should first be examined by a doctor and then have regular medical check-ups to ensure medical problems are not being caused or worsened from use. Pregnant women or people who have impaired blood circulation to the hand, past hand injuries, nervous system disorders, diabetes, or Raynaud's Disease should not use this tool. If you feel any symptoms related to vibration (such as tingling, numbness, and white or blue fingers), seek medical advice as soon as possible.
2. Do not smoke during use. Nicotine reduces the blood supply to the

SERVICE PRECAUTIONS

1. **Before service, maintenance, or cleaning:**
 - a. Turn the ON/OFF switch to its "OFF" position.
 - b. Allow the engine to completely cool.
 - c. Then, remove the spark plug wire(s) from the spark plug(s).
2. Keep all safety guards in place and in proper working order. Safety guards include muffler, air cleaner, mechanical guards, and heat shields, among other guards.
3. **Do not alter or adjust any part of the equipment or its engine that is sealed by the manufacturer or distributor. Only a qualified service technician may adjust parts that may increase or decrease governed engine speed.**

4. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during service.
5. Maintain labels and nameplates on the equipment. These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
6. Have the equipment serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the equipment is maintained. Do not attempt any service or maintenance procedures not explained in this manual or any procedures that you are uncertain about your ability to perform safely or correctly.
7. Store equipment out of the reach of children.
8. Follow scheduled engine and equipment maintenance.
9. Refueling Precautions:
 - a. Do not smoke, or allow sparks, flames, or other sources of ignition around the equipment, especially when refuelling.
 - b. Do not refill the fuel tank while the engine is running or hot.
 - c. Do not fill fuel tank to the top. Leave a little room for the fuel to expand as needed.
 - d. Refuel in a well-ventilated area only.

**SAVE THESE
INSTRUCTIONS.**

SPECIFICATIONS

Engine	Type	2 Stroke, air cooled
	Rating	4.7 horsepower
	Start	Recoil
Bore x Stroke		1.89" x 1.34"
Compression Ratio		7.5:1
Displacement		61.5 cc
Sound Level		105 dB @ 3 ft.
Fuel	Type	90+octane unleaded gasoline/2-cycle oil
	Fuel/Oil Ratio	40:1
	Capacity	0.7 L (0.18 Gallons)
Spark Plug	Type	NGK - BPMR7A TORCH - L6RTC
	Gap	0.02" (0.5mm)
Speed	Idle	2600 RPM
	No Load	9500 RPM
Blade (not included)	Size	14" dia. 7/64" to 1/4" thick
	Arbor	1" / 20 mm
Max. Cutting Depth		4-1/2"
Belt		SPZ 900
Air Filter		Prefilter (Foam) Paper Cartridge Flocked Aux.

Note: Additional specifications found in the TECHNICAL ENGINE SPECIFICATIONS chart in this manual.

The emission control system for this Saw's Engine is warranted for standards set by the U.S. Environmental Protection Agency and by the California Air Resources Board (also known as CARB). For warranty information, refer to the last pages of this manual.

At high altitudes, the engine's carburetor, governor (if so equipped), and any other parts that control the fuel-air ratio will need to be adjusted by a qualified mechanic to allow efficient high-altitude use and to prevent damage to the engine and any other devices used with this product.

UNPACKING

When unpacking, make sure that the item is intact and undamaged. If any parts are missing or broken, please call Harbor Freight Tools at 1-800-444-3353 as soon as possible.

Components and Controls

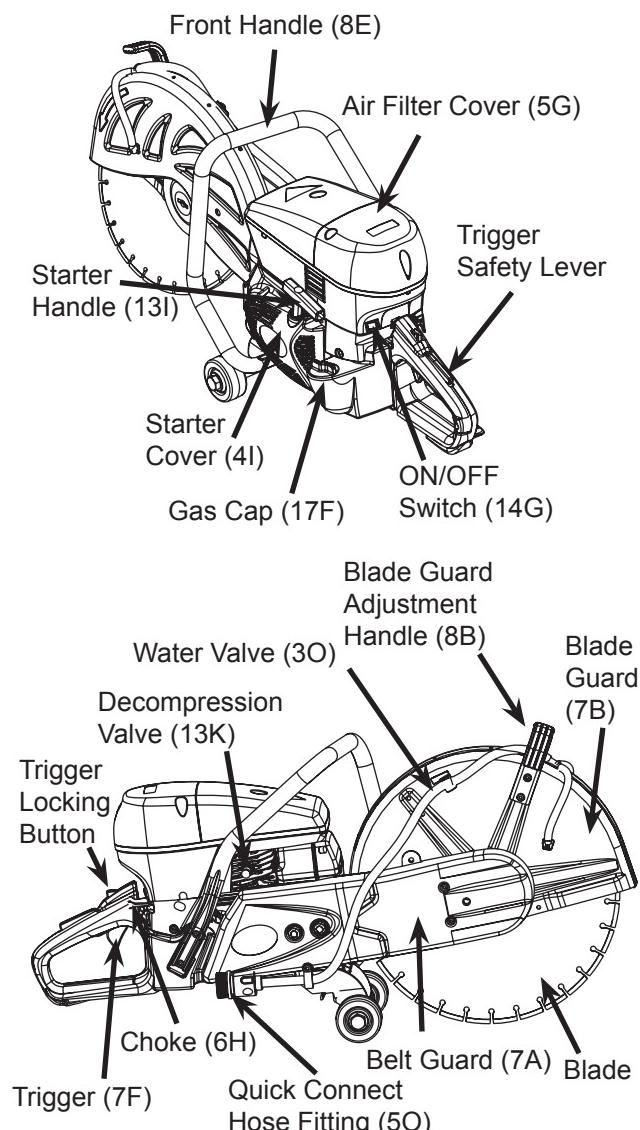


Figure 1

SET UP INSTRUCTIONS



Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text under subheadings therein before set up or use of this product.



TO PREVENT SERIOUS INJURY

FROM ACCIDENTAL STARTING:

Turn the Power Switch of the equipment to its “OFF” position, wait for the engine to cool, and disconnect the spark plug wire(s) before assembling or making any adjustments to the equipment.



TO PREVENT SERIOUS INJURY:

Operate only with proper spark arrestor installed.

Operation of this equipment may create sparks that can start fires around dry vegetation.

A spark arrestor may be required.

The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.

Note: For additional information regarding the parts listed in the following pages, refer to the Parts Lists and Assembly Diagrams near the end of this manual.

Assembly

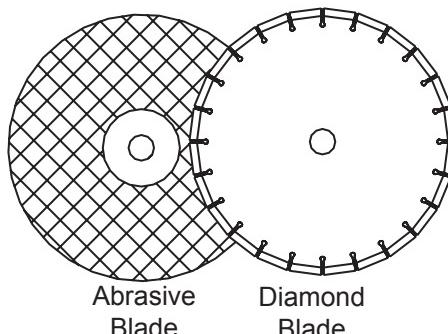


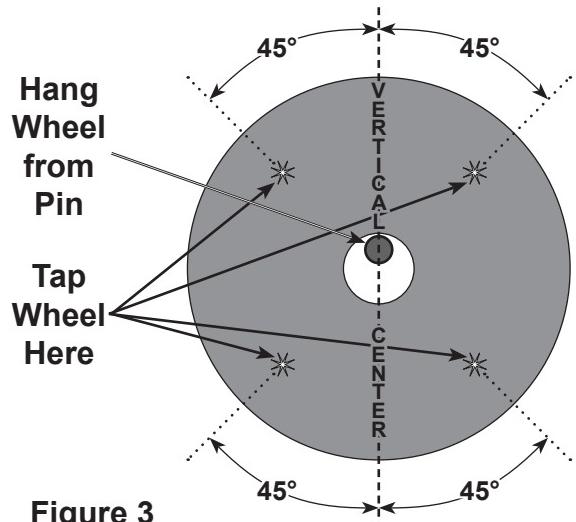
Figure 2

Cutting blades are available in two standard designs: abrasive blades and diamond blades. Before using any blade, check it for damage. Use the ring-test, described in next section, for abrasive blades and check diamond blades for bent or damaged flanges or accumulated dirt.

Abrasive Blade Ring Test

Closely inspect the blade before mounting. Perform a ring-test on the blade as follows:

1. Suspend the blade using a pin or finger through the arbor hole.



2. Tap the flat side of the blade with a light non-metallic object, such as a screwdriver handle, at a point 45° from the vertical center line on each side of the blade and 1 – 2 inches from the edge of the blade - See Figure 3.
3. Rotate the blade 45 degrees and repeat the test until the entire wheel has been checked.
4. An undamaged blade will give a clear tone. If cracked, there will be a dead sound and not a clear ring. Do not use a damaged blade.

Installing the Blade

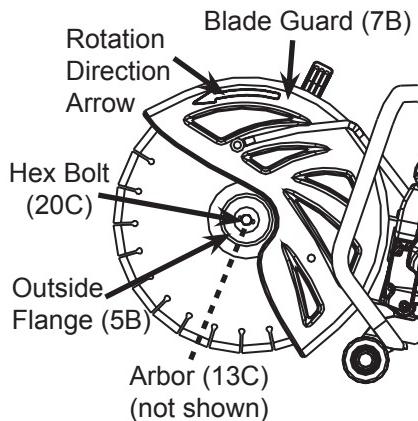


Figure 4

1. Loosen and remove the Hex Bolt (20C). Then, remove the Outside Flange (5B).
2. The Inner Flange must be oriented so that it matches perfectly with the arbor hole of the blade (one side is 1" and the other side is 20 mm).
3. Mount the new Saw Blade (not included) on the Arbor (13C).
4. **IMPORTANT:** The arrow shown on the Saw Blade must point in the same direction as the arrow shown on the Blade Guard (7B).
5. Once the Saw Blade (not included) is mounted on the Arbor (13C), replace the Outside Flange (5B) and firmly tighten the Hex Bolt (20C) to secure the Saw Blade in place.
6. Make sure to check the Blade Guard (7B) for proper operation. Never disable the Guard. Do not use the Cut Off Saw if the Guard assembly does not operate properly. Before each use, make sure the Blade Guard does not touch the Saw Blade.

Filling the Fuel Tank



⚠WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:

Mix the fuel (see below) and fill the fuel tank in a well-ventilated area away from ignition sources. Do not smoke.

WARNING! Your Warranty is voided if: You do not operate the Cut Off Saw with the proper 40:1 fuel mix in its Fuel Tank. Never run the Engine with an improper fuel mix, low or no fuel mix. Running the Engine with an improper fuel mix, low or no fuel mix will permanently damage the unit. Only use 2-stroke engine oil for air cooled engines. Never use outboard engine oil.

1. To obtain the proper 40:1 fuel mix, combine 2 stroke engine oil with unleaded gasoline (minimum 90 octane rating) in a clean, approved container. To mix the fuel:
 - a. Add half the amount of fuel and the entire amount of oil.
 - b. Cover and shake the fuel mixture.
 - c. Add the remaining amount of fuel.
2. Cover and shake to thoroughly mix before each fueling. Refer to the Chart below for proper mix quantities.
NOTE: Mix only enough fuel for a few days work. The maximum storage time of mixed fuel is 3 months.

FUEL MIX QUANTITIES		
Ratio	2 Stroke Engine Oil	Unleaded Gasoline (90 Octane)
40:1	4 Fl. Oz.	1.2 Gal.
40:1	8 Fl. Oz.	2.4 Gal.

3. Once the proper fuel mix is obtained, wipe gas cap (17F) and its surrounding area, then remove the Gas Cap. Fill the Fuel Tank approximately 3/4 full with the fuel mix (the Fuel Tank capacity is 0.18 gallons). Then, replace the Gas Cap.

OPERATING INSTRUCTIONS



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

Starting the Engine



Inspect engine and equipment looking for damaged, loose, and missing parts before set up and starting. If any problems are found, do not use equipment until fixed properly.



Before starting the engine:

- a. Follow the Set Up Instructions to prepare the equipment.
- b. Inspect the equipment and engine.
- c. Fill the engine with the proper amount and type of fuel and oil mixture.
- d. Read the Equipment Operation section that follows.

⚠CAUTION

The cutting blade may rotate when the engine starts.

Note: Refer to the Components and Controls Diagram, Figure 1 on page 10 for the following instructions.

1. Turn ON the ON/OFF Switch (14G).
2. If the engine is cold, pull out the Choke (6H). If the engine is warm, press in the Choke.
3. Hold the Trigger Safety Lever in using your palm, squeeze the Trigger (7F) and then press in the Trigger Locking Button (see Figure 1, page 9 for location of controls). Release the Trigger, then release the Trigger Locking Button and the Trigger Safety Lever. The Trigger should remain locked in the engaged position.
4. Press in the Decompression Valve (13K).
5. Place the Cut Off Saw on the ground. Hold the Front Handle (8E) with your right hand and put your right foot on the lower part of the rear handle.
6. Grip the Starter Handle (13I) with your left hand, and slowly pull until you feel resistance. Once you feel resistance, pull quickly and firmly, several times if needed, until the engine starts.

Note: Do not pull the Starter Cord completely out and do not release the Starter Handle from the fully extended position. This can damage the saw. Hold the Starter Handle and guide the Starter Cord as it recoils back into the machine.

7. Once the engine starts, squeeze the Trigger. The engine should idle down but not cut off.
8. If the Choke was pulled out, slowly push in the choke.

IMPORTANT: Allow the engine to run at no load until warm (1-5 minutes)

after each start-up to allow the engine to stabilize.

9. If the engine does not start, press the Decompression Valve Button (7B) in and attempt to start it again.
10. To stop the engine, turn off the ON/OFF Switch.
11. After use, to prevent accidents, turn off the engine, wait for the engine to cool, then disconnect its spark plug wire after use. Clean external parts with clean cloth, then store the equipment out of children's reach according to the Storage instructions in this manual.

Break-in Period

1. Breaking-in the engine will help to ensure proper equipment and engine operation, and will extend the engine's lifespan.
2. During the first 3 hours of use:
3. Do not apply a heavy load to the equipment.
4. Do not operate the engine at its maximum speed.
5. Under normal operating conditions subsequent maintenance follows the schedule explained in the Maintenance and Servicing section.

Cutting Technique

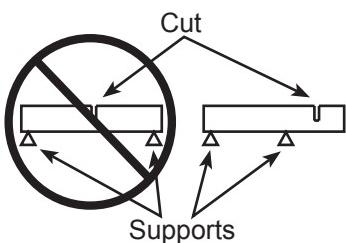


Figure 5

1. Support the material being cut so that the cut will open up as the cut is made, rather than pinch together.
2. Always cut at full throttle.
3. Start cutting gently, do not force or squeeze the blade into the material or the groove of the cut.

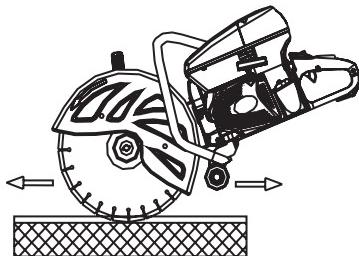
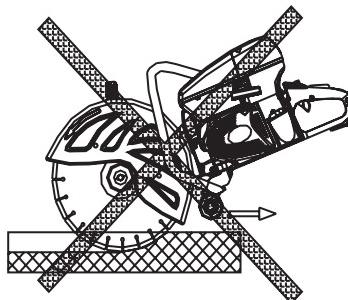


Figure 6

4. Move the blade slowly backwards and forwards, using a small part of the cutting edge of the blade to slowly cut material. Do not cut only in one direction - See Figure 6.
5. Keep the blade at a right angle to the cutting surface.
6. Never cut above shoulder height.

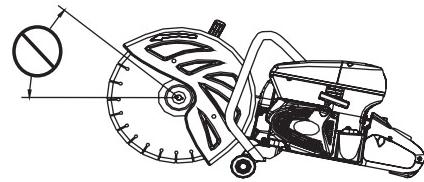


Figure 7

7. To avoid kickback, never cut with the upper section of the blade - See Figure 7.
8. Abrasive Blades are not intended for use with water.
9. When cutting concrete always use the water cooling system. To use the water cooling system:
 - a. Before starting the engine attach a garden hose to the Quick Connect Hose Fitting (50).
 - b. Turn on the hose.
 - c. Start the engine.

SERVICING

WARNING TO PREVENT SERIOUS INJURY FROM ACCIDENTAL STARTING:
Turn the Power Switch of the equipment to its "OFF" position, wait for the engine to cool, and disconnect the spark plug wire(s) before performing any inspection, maintenance, or cleaning procedures.

WARNING TO PREVENT SERIOUS INJURY FROM EQUIPMENT FAILURE:
Do not use damaged equipment. If abnormal noise, vibration, or excess smoking occurs, have the problem corrected before further use.

Maintenance Procedures



Many maintenance procedures, including those not detailed in this manual, will need to be performed by a qualified technician for safety. If you have any doubts about your ability to safely service the equipment or engine, have a qualified technician service the equipment instead.

Note: Warranty is void if proper maintenance and servicing procedures are not followed.

Cooling System

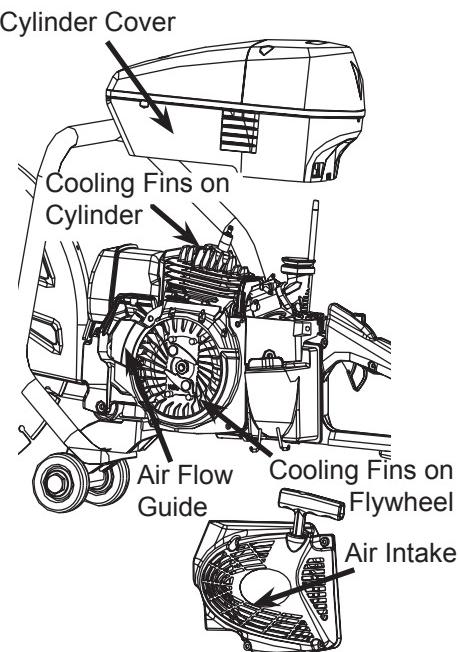


Figure 8

Clean the cooling system using a brush or compressed air at the end of each day. A dirty or blocked cooling system results in overheating, which causes damage to the piston and cylinder.

Air Filter Element Maintenance

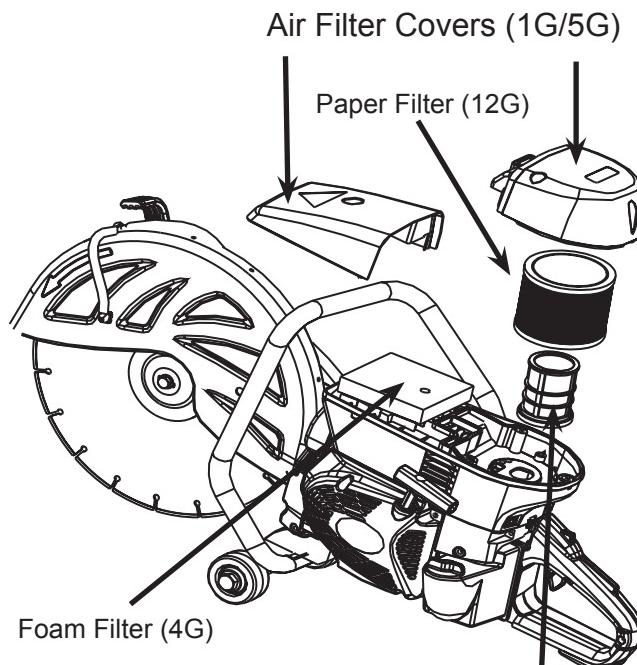


Figure 9 Filter Screen (13G)

1. Wipe off the Air Filter Covers (1G/5G).
2. Unthread the screws which hold the covers in place and remove the covers.
3. Remove the air filter element.
4. **Cleaning:**

a. For the Paper Filter (12G):
To prevent injury from dust and debris, wear ANSI-approved safety goggles, NIOSH-approved dust mask/respirator, and heavy-duty work gloves. In a well-ventilated area away from bystanders, use pressurized air to blow dust out of the air filter from the side opposite the filter's normal air flow (the "clean" side of the filter). If this does not get the filter reasonably clean, replace it.

b. For the Foam Filter (4G):
Wash the element in warm water

and mild detergent several times. Rinse thoroughly. Squeeze out excess water and allow it to dry completely. Soak the filter in lightweight oil briefly, then squeeze out the excess oil.

5. Install the new filters or the cleaned filters. Secure the Air Filter Cover before use.

Spark Plug Maintenance

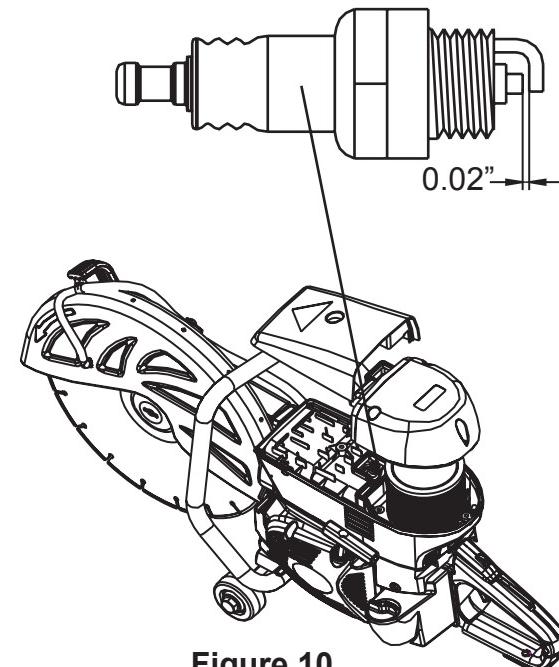


Figure 10

1. Disconnect spark plug wire from end of plug. Clean out debris from around spark plug.
2. Using a spark plug wrench, remove the spark plug.
3. Inspect the spark plug:
 - a. If the electrode is oily, clean it using a clean, dry rag.
 - b. If the electrode has deposits on it, polish it using emery paper.

- c. If the white insulator is cracked or chipped, the spark plug needs to be replaced.
- 4. When installing a new spark plug, adjust the plug's gap to the specification on the Technical specification chart. Do not pry against the electrode or the insulator, the spark plug can be damaged.
- 5. Install the new spark plug or the cleaned spark plug into the engine. Gasket-style: Finger-tighten until the gasket contacts the cylinder head, then about 1/2-2/3 turn more. Non-gasket-style: Finger-tighten until the plug contacts the head, then about 1/16 turn more.
- 6. Apply dielectric spark plug boot protector (not included) to the end of the spark plug and reattach the wire securely.
- 5. Place a suitable container under the Fuel Filter.
- 6. Disconnect the fuel lines leading to and from the Fuel Filter and allow fuel to drain onto the container.
- 7. Install new Fuel Filter in the same orientation. Properly secure both fuel lines.
- 8. Clean up and properly dispose of all fuel.
- 9. Wait for at least one hour before use to allow all residual fuel vapors to dissipate. **To prevent FIRE, do not start the engine while the smell of fuel hangs in the air.** Remember to open the fuel valve before restarting the engine. It may take a little longer than usual to start the engine because the fuel needs to refill the fuel line and new filter.

Fuel Filter Replacement



⚠️WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:

Replace the Fuel Filter (16F) in a well-ventilated area away from ignition sources. Do not smoke.

1. Wait for engine to cool completely before proceeding.
2. Wear protective gear including, ANSI-approved safety goggles, NIOSH-approved dust mask/respirator, and nitrile gloves.
3. Close fuel valve leading from gas tank completely.
4. Take note of the Fuel Filter's orientation.

Cleaning, Maintenance, and Lubrication Schedule

Note: This maintenance schedule is intended solely as a general guide. If performance decreases or if equipment operates unusually, check systems immediately. The maintenance needs of each piece of equipment will differ depending on factors such as duty cycle, temperature, air quality, fuel quality, and other factors. If you have doubts about your ability to safely service this tool, have a qualified technician service the equipment instead.

Note: These procedures are in addition to the regular checks and maintenance explained as part of the regular operation of the engine and equipment.

Weekly Maintenance:

- a. Clean the cooling system as described under Servicing-Cooling System. Check the filters, clean or replace as needed.
- b. Check and clean the spark plug.
- c. Clean the Cooling Fins on the Cylinder (1K).
- d. Check the muffler.
- e. Check the carburetor.
- f. Blow dust off with compressed air.

Monthly Maintenance:

- a. Check the clutch drum, drive-pulley, clutch springs for wear.
- b. Clean the outside of the carburetor.
- c. Check the fuel filter and fuel hose. Change if needed.
- d. Clean the inside of the fuel tank.
- e. Check all cables and connections

Storage

1. Wait for engine to cool, then clean engine with clean cloth.
2. Remove the blade from the Saw and store separately.
3. Abrasive blades should be handled with care to prevent damage. Store abrasive blades on a flat level surface.
4. When the equipment is to remain idle for longer than 20 days, prepare the engine for storage as follows:
 - a. Empty fuel tank.
 - b. Clean out area around spark plug. Remove spark plug and pour one tablespoon of engine oil into cylinder through spark plug hole.
 - c. Reinstall spark plug, but leave spark plug wire disconnected.
 - d. Pull recoil starter to distribute oil in cylinder. Stop after one or two revolutions.
5. Apply a thin coat of rust preventive oil to all uncoated metal parts.
6. Cover and store in a dry, well-ventilated area out of reach of children.

Troubleshooting

Engine will not start	FUEL RELATED: <ol style="list-style-type: none"> 1. No fuel in tank or fuel valve closed. 2. Choke not in start position, especially with cold engine. 3. Low quality or deteriorated, old gasoline. 4. Dirty fuel passageways blocking fuel flow. 5. Carburetor needle stuck. Fuel can be smelled in the air. 6. Too much fuel in chamber. This can be caused by the carburetor needle sticking. 	FUEL RELATED: <ol style="list-style-type: none"> 1. Fill fuel tank and open fuel valve. 2. Move choke to start position if engine is cold. 3. Use only fresh 90+ octane unleaded gasoline in proper mixture with 2-stroke engine oil. 4. Clean out passageways using fuel additive. Heavy deposits may require further cleaning. 5. Gently tap side of carburetor float chamber with screwdriver handle. 6. Turn choke to run position. Remove spark plug and pull the start handle several times to air out the chamber. Reinstall spark plug and set choke to start position.
	IGNITION (SPARK) RELATED: <ol style="list-style-type: none"> 1. Spark plug wire disconnected or not connected securely. 2. Spark plug electrode wet or dirty. 3. Incorrect spark plug gap. 4. Spark plug wire or spark plug broken. 5. Incorrect spark timing or faulty ignition system. 	IGNITION (SPARK) RELATED: <ol style="list-style-type: none"> 1. Connect spark plug wire properly. 2. Clean spark plug. 3. Correct spark plug gap. 4. Replace spark plug wire and/or spark plug. 5. Have qualified technician diagnose/repair ignition system.
	COMPRESSION RELATED: <ol style="list-style-type: none"> 1. Cylinder not lubricated. Problem after long storage periods. 2. Loose or broken spark plug. (Hissing noise will occur when trying to start.) 3. Loose cylinder head or damaged head gasket. (Hissing noise will occur when trying to start.) 4. Engine valves or tappets misadjusted or stuck. 	COMPRESSION RELATED: <ol style="list-style-type: none"> 1. Pour tablespoon of oil into spark plug hole. Crank engine a few times and try to start again. 2. Tighten spark plug. If that does not work, replace spark plug. If problem persists, may have head gasket problem, see #3 to the left. 3. Tighten head. If that does not remedy problem, replace head gasket. 4. Adjust valve clearance. If that does not work, clean or replace valves/tappets.



Follow all safety precautions whenever diagnosing or servicing the equipment or engine.

Troubleshooting (continued)

Problem	Possible Causes	Probable Solutions
Engine misfires	1. Spark plug wire loose. 2. Incorrect spark plug gap or damaged spark plug. 3. Defective spark plug wire. 4. Old or low quality gasoline.	1. Check wire connections. 2. Re-gap or replace spark plug. 3. Replace spark plug wire. 4. Use only fresh 90+ octane unleaded gasoline, 40:1 mixture with 2-stroke engine oil.
Engine stops suddenly	1. Fuel tank empty or full of impure or low quality gasoline. 2. Defective fuel tank cap creating vacuum, preventing proper fuel flow. 3. Improper idle speed. 4. Faulty magneto, incorrect timing, or clogged carburetor.	1. Fill fuel tank with fresh 90+ octane unleaded gasoline in 40:1 mixture with 2-stroke engine oil. 2. Test/replace fuel tank cap. 3. Properly adjust idle speed. 4. Have qualified technician diagnose and service engine.
Engine knocks	1. Old or low quality gasoline. 2. Engine overloaded. 3. Incorrect spark timing, deposit buildup, worn engine, or other mechanical problems.	1. Empty fuel tank and re-fill with fresh 90+ octane unleaded gasoline, 40:1 mixture with 2-stroke engine oil. 2. Do not exceed equipment's load rating. 3. Have qualified technician diagnose and service engine.
Engine backfires	1. Impure or low quality gasoline. 2. Choke not open after engine warm. 3. Engine not properly adjusted for high altitude operation. 4. Intake valve stuck, choke stuck, incorrect timing, clogged carburetor, or overheated engine.	1. Fill fuel tank with fresh 90+ octane unleaded gasoline, 40:1 mixture with 2-stroke engine oil. 2. Move choke to RUN position after engine warms up. 3. Qualified technician must adjust engine at altitudes greater than 5,000 feet above sea level. 4. Have qualified technician diagnose and service engine.
Saw Blade not rotating up to full speed.	1. Improper fuel mixture. 2. Belt too tight or too loose. 3. Air filter needs cleaning or changing.	1. Check that fuel mixture is accurate. 2. Adjust belt. 3. Check air filter and clean or replace.
Poor quality of cut.	1. Blade improperly installed. 2. Blade worn or damaged.	1. Make sure Saw Blade is properly installed. 2. Replace worn or damaged Blade.



Follow all safety precautions whenever diagnosing or servicing the equipment or engine.

PLEASE READ THE FOLLOWING CAREFULLY

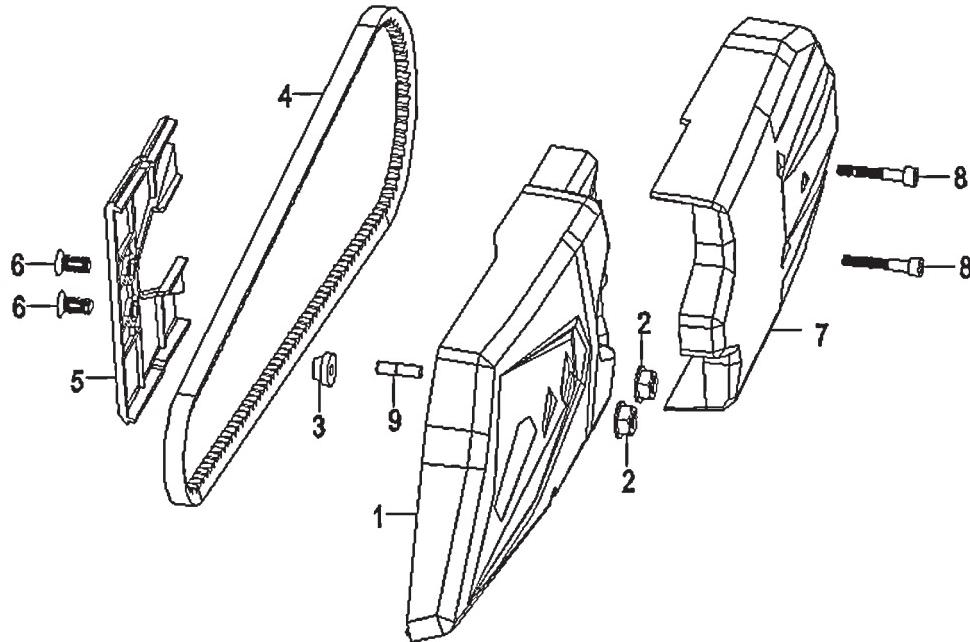
THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

PARTS LISTS AND DIAGRAMS

Drive System Parts List & Diagram

Part	Description	Qty
1A	Back Cover	1
2A	Flange Nut	2
3A	Grommet	1
4A	V-Belt SPZ 900	1
5A	Belt Cover	1

Part	Description	Qty
6A	Bolt	2
7A	Belt Guard	1
8A	Bolt	2
9A	Pin	1



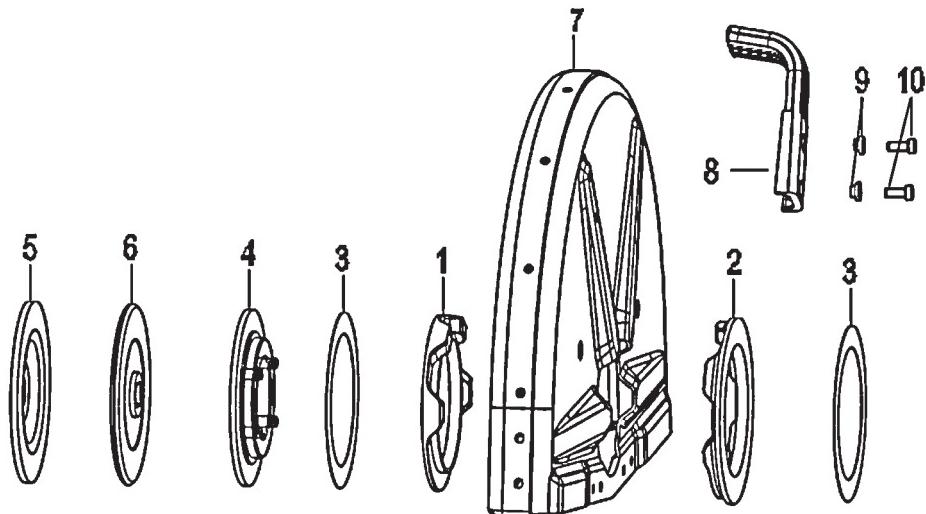
Note: When ordering parts for this component use the suffix "A".

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

Blade Guard Assembly Parts List & Diagram

Part	Description	Qty
1B	Washer	1
2B	Washer	1
3B	Washer	2
4B	Guard Flange	1
5B	Outside Flange	1

Part	Description	Qty
6B	Inside Flange	1
7B	Blade Guard	1
8B	Adjustment Handle	1
9B	Spacer	2
10B	Bolt	2



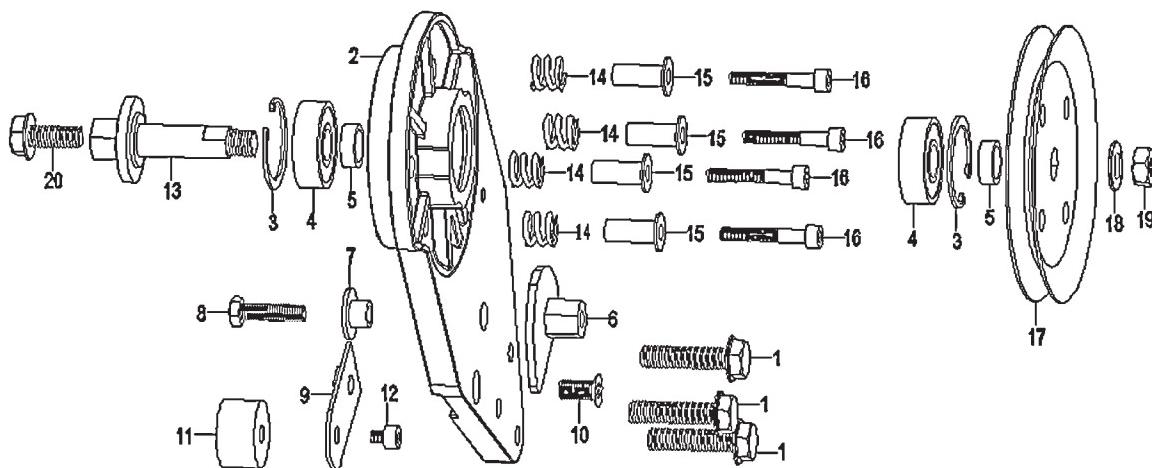
Note: When ordering parts for this component use the suffix “B”.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

Flange Assembly Parts List & Diagram

Part	Description	Qty
1C	Hex Flange Bolt	3
2C	Cutting Arm	1
3C	Clamp	2
4C	Ball Bearing	2
5C	Bushing	2
6C	Belt Tensioner	1
7C	Spacer	1
8C	Screw	1
9C	Bracket	1
10C	Bolt	1
11C	Rubber Washer	1

Part	Description	Qty
12C	Bolt	1
13C	Arbor	1
14C	Spring	4
15C	Spacer	4
16C	Bolt	4
17C	Pulley	1
18C	Washer	1
19C	Nut	1
20C	Hex Bolt	1



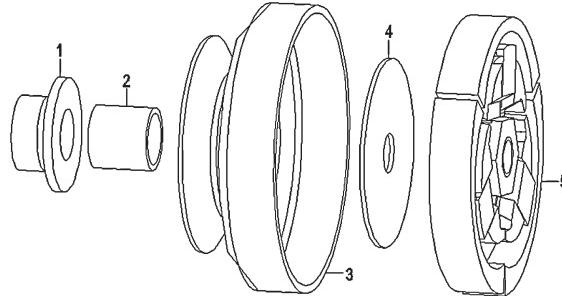
Note: When ordering parts for this component use the suffix "C".

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

Clutch Assembly Parts List & Diagram

Part	Description	Qty
1D	Spacer	1
2D	Bushing	1
3D	Clutch Drum	1

Part	Description	Qty
4D	Clutch Washer	1
5D	Centrifugal Clutch Assembly	1

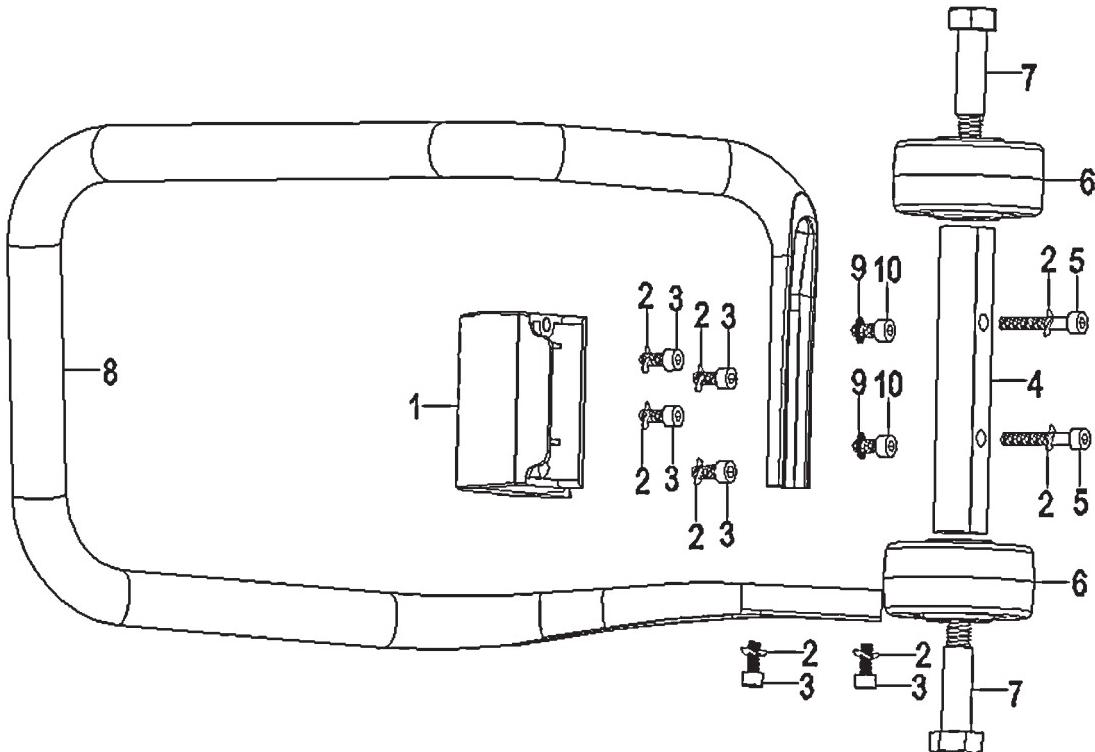


Note: When ordering parts for this component use the suffix "D".

Handle Assembly Parts List & Diagram

Part	Description	Qty
1E	Bracket	1
2E	Washer	8
3E	Bolt	6
4E	Roller Shaft	1
5E	Bolt	2

Part	Description	Qty
6E	Roller	2
7E	Roller Screw	2
8E	Front Handle	1
9E	Washer	2
10E	Bolt	2

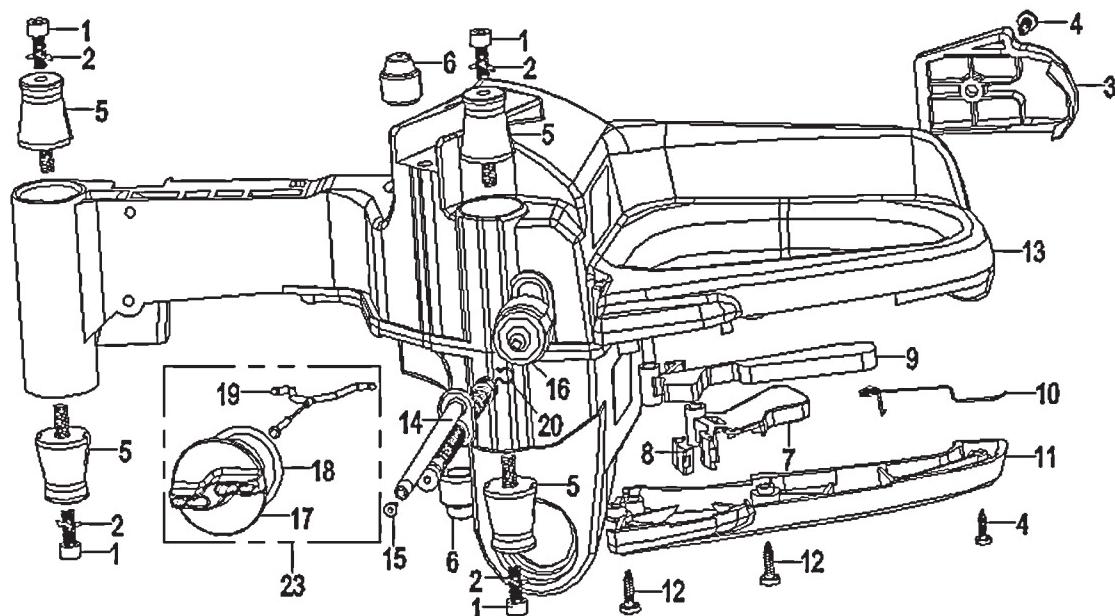


Note: When ordering parts for this component use the suffix "E".

Control System Parts List & Diagram

Part	Description	Qty
1F	Bolt1	4
2F	Washer	4
3F	Handle Support	1
4F	Screw	2
5F	Front Vibration Isolator	4
6F	Rear Vibration Isolator	2
7F	Trigger	1
8F	Throttle Spring Piece	1
9F	Trigger Safety Lever	1
10F	Throttle Catch Spring	1
11F	Left Handle Cover	1

Part	Description	Qty
12F	Screw	2
13F	Tank Complete	1
14F	Fuel Line	1
15F	Tank Vent	1
16F	Fuel Filter	1
17F	Gas Cap	1
18F	O-Ring	1
19F	Pot Hook	1
20F	Fuel Line Clamp	1
23F	Gas Cap Complete	1



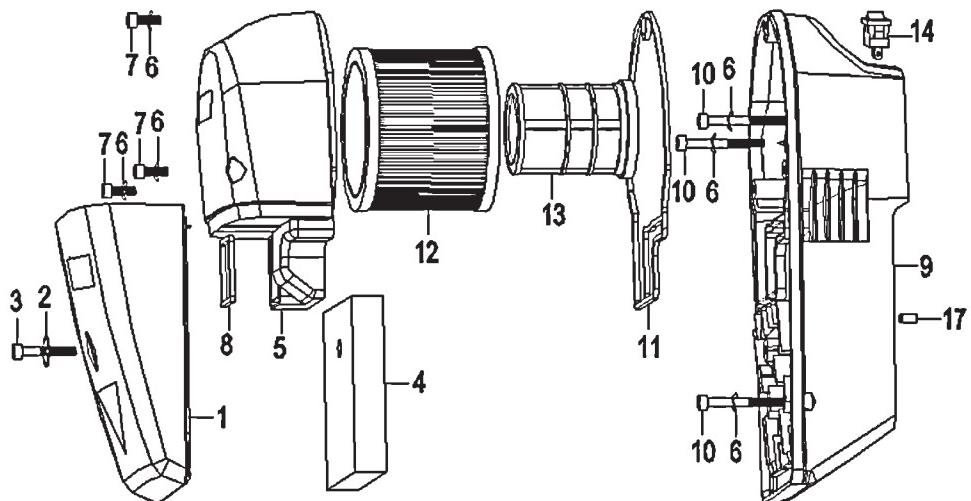
Note: When ordering parts for this component use the suffix "F".

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

Air Filter Assembly Parts List & Diagram

Part	Description	Qty
1G	Front Air Filter Cover	1
2G	Washer	1
3G	Bolt	1
4G	Foam Filter	1
5G	Air Filter Cover	1
6G	Washer	6
7G	Bolt	3
8G	Seal	1

Part	Description	Qty
9G	Air Filter Base	1
10G	Bolt	3
11G	Seal	1
12G	Paper Filter	1
13G	Filter Screen	1
14G	ON/OFF Switch	1
17G	Grommet	1



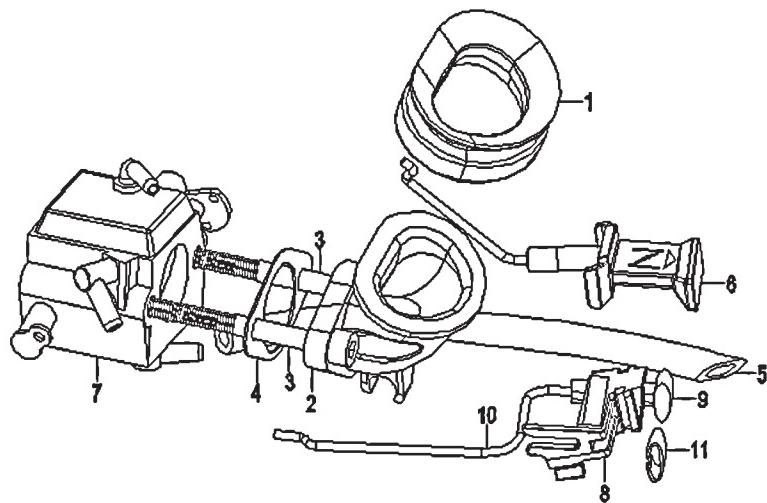
Note: When ordering parts for this component use the suffix "G".

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

Carburetor Assembly Parts List & Diagram

Part	Description	Qty
1H	Rubber Seal	1
2H	Intake Manifold	1
3H	Bolt	2
4H	Gasket	1
5H	Breather Hose	1
6H	Choke	1

Part	Description	Qty
7H	Carburetor Assembly	1
8H	Throttle Linkage Holder	1
9H	Throttle Bushing	1
10H	Throttle Rod	1
11H	Throttle Spring	1



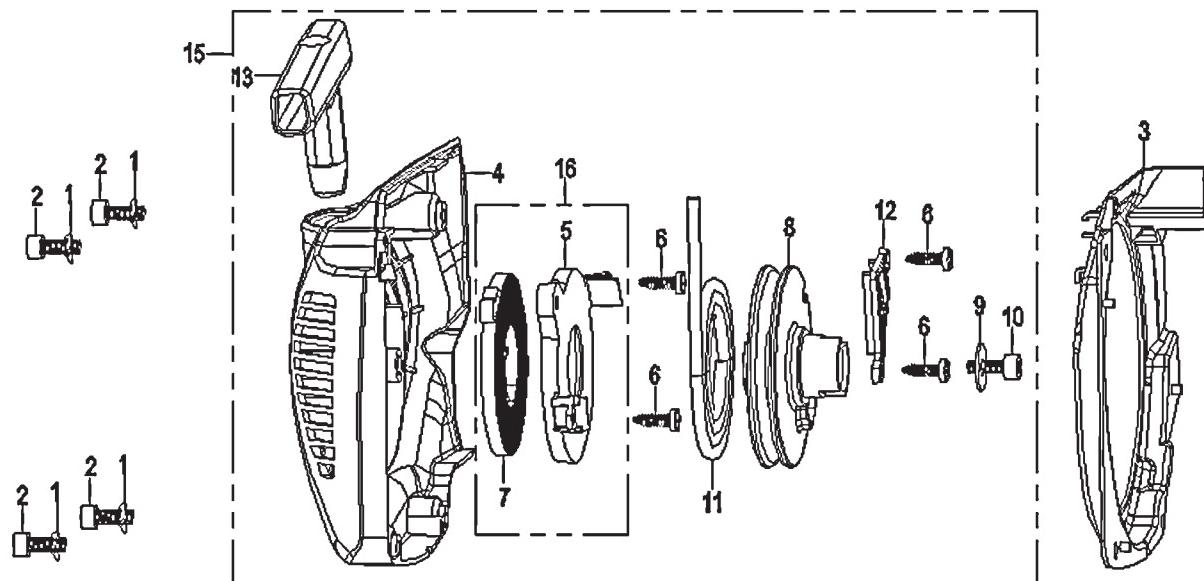
Note: When ordering parts for this component use the suffix "H".

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

Recoil Assembly Parts List & Diagram

Part	Description	Qty
1I	Washer	4
2I	Bolt	4
3I	Air Conductor	1
4I	Starter Cover	1
5I	Recoil Spring Mount	1
6I	Screw	4
7I	Recoil Spring	1
8I	Starter Pulley	1

Part	Description	Qty
9I	Washer	1
10I	Bolt	1
11I	Starter Rope	1
12I	Baffle	1
13I	Starter Handle	1
15I	Starter Assembly	1
16I	Recoil Assembly	1



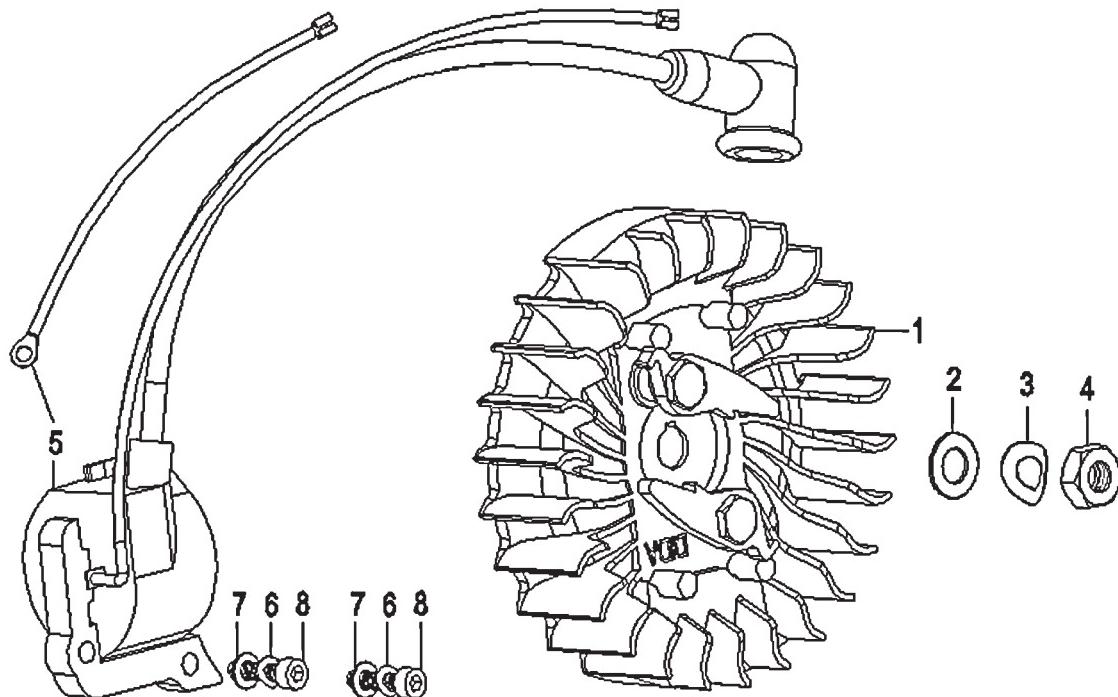
Note: When ordering parts for this component use the suffix "I".

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

Ignition Assembly Parts List & Diagram

Part	Description	Qty
1J	Flywheel Assembly	1
2J	Washer	1
3J	Washer	1
4J	Nut	1

Part	Description	Qty
5J	Ignition Assembly	1
6J	Washer	2
7J	Washer	2
8J	Bolt	2



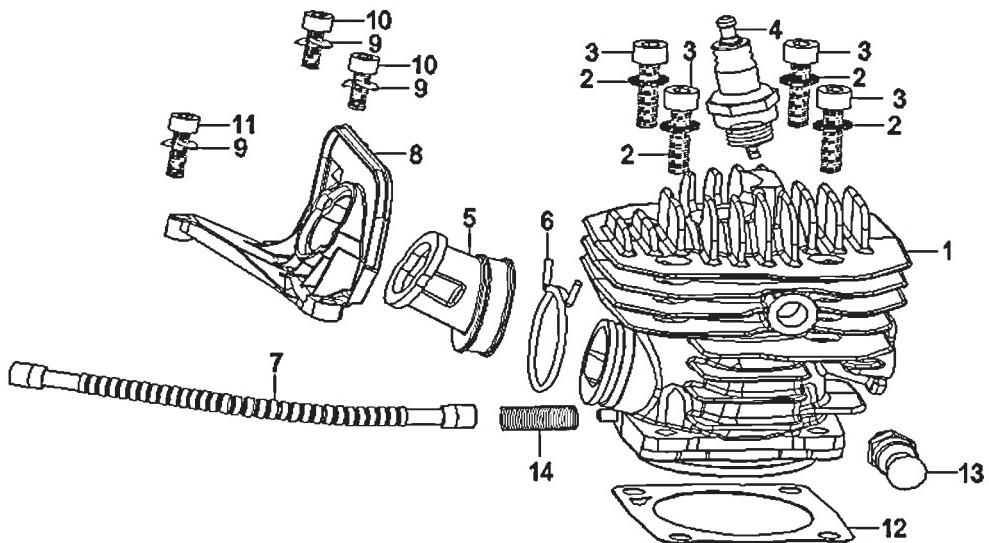
Note: When ordering parts for this component use the suffix “J”.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

Cylinder Assembly Parts List & Diagram

Part	Description	Qty
1K	Cylinder	1
2K	Washer	4
3K	Bolt	4
4K	Spark Plug	1
5K	Intake Manifold	1
6K	Clamp	1
7K	Cylinder Breather Hose	1

Part	Description	Qty
8K	Holder	1
9K	Washer	3
10K	Bolt	2
11K	Bolt	1
12K	Gasket	1
13K	Decompression Valve	1
14K	Spring	1



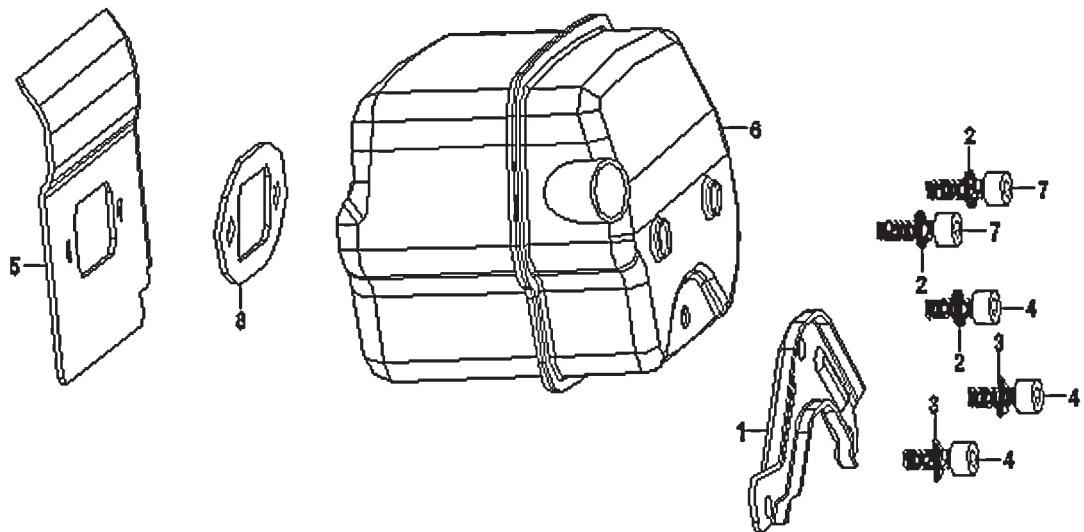
Note: When ordering parts for this component use the suffix "K".

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

Muffler Assembly Parts List & Diagram

Part	Description	Qty
1L	Holder	1
2L	Washer	3
3L	Washer	2
4L	Bolt	3

Part	Description	Qty
5L	Deflector	1
6L	Muffler	1
7L	Bolt	2
8L	Gasket	1



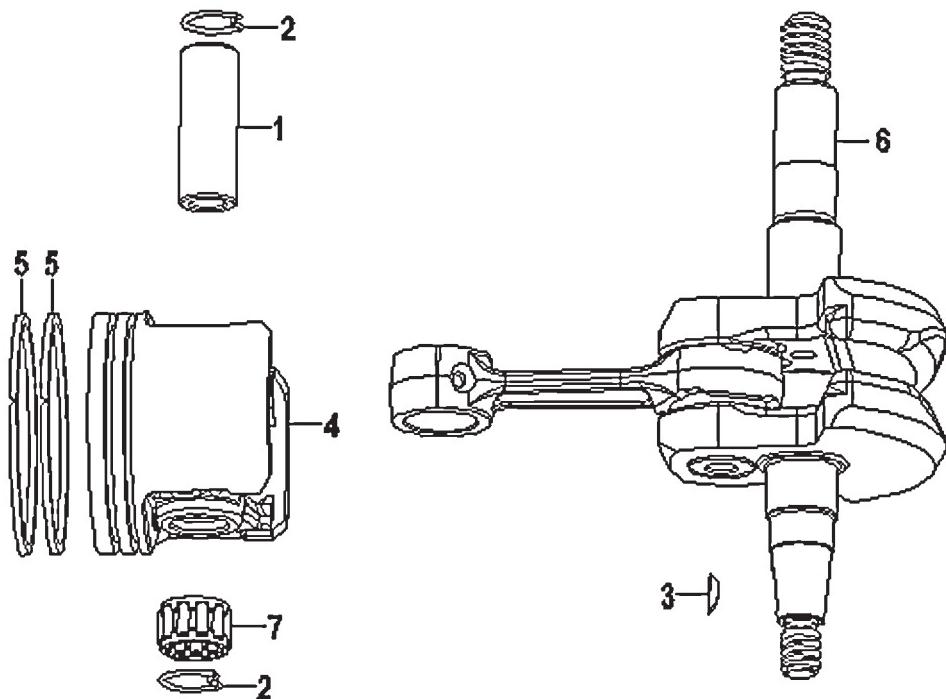
Note: When ordering parts for this component use the suffix "L".

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

Crankshaft Assembly Parts List & Diagram

Part	Description	Qty
1M	Wrist Pin	1
2M	Retaining Ring	2
3M	Woodruff Key	1
4M	Piston	1

Part	Description	Qty
5M	Piston Ring	2
6M	Crankshaft Assembly	1
7M	Needle Bearing	1



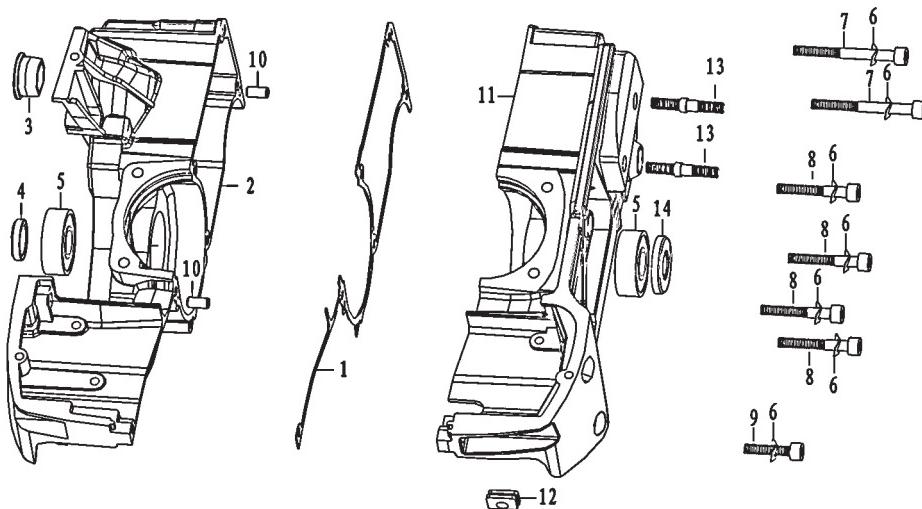
Note: When ordering parts for this component use the suffix “M”.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

Crankcase Assembly Parts List & Diagram

Part	Description	Qty
1N	Gasket	1
2N	Crankcase Left	1
3N	Cover	1
4N	Seal	1
5N	Crankcase Ball Bearing	2
6N	Washer	7
7N	Bolt	2

Part	Description	Qty
8N	Bolt	4
9N	Bolt	1
10N	Guide Pin	2
11N	Crankcase Right	1
12N	Grommet	1
13N	Stud Bolt	2
14N	Seal	1



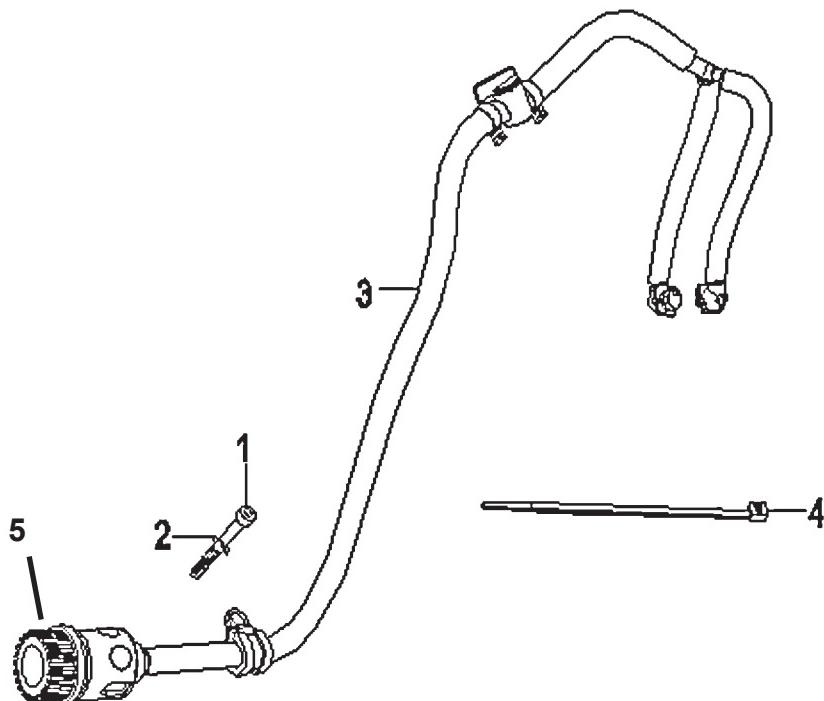
Note: When ordering parts for this component use the suffix "N".

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

Wet Cutting Kit Parts List & Diagram

Part	Description	Qty
1O	Bolt	1
2O	Washer	1
3O	Water Valve Tubing	1

Part	Description	Qty
4O	Tie Wrap	1
5O	Quick Connect Hose Fitting	1



Note: When ordering parts for this component use the suffix "O".

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

Record Product's Serial Number Here: _____

Note: If product has no serial number, record month and year of purchase instead.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

LIMITED 90 DAY WARRANTY

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. **THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.**

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

**3491 Mission Oaks Blvd. • PO Box
6009 • Camarillo, CA 93011 • (800)
444-3353**

EMISSION CONTROL SYSTEM WARRANTY

California and United States Emission Control Defects Warranty Statement

The California Air Resources Board (herein CARB), the United States Environmental Protection Agency (herein EPA), and Harbor Freight Tools (herein HFT) are pleased to explain the emission control system warranty on your 1995 and later Small Off-Road Engine (herein engine). In California, the engine must be designed, built and equipped to meet the State's stringent anti-smog standards. Elsewhere within the United States, new off-road, spark-ignition engines certified for model year 1997 and later, must meet similar standards set forth by the EPA. HFT must warrant the emission control system on your engine for the periods of time described below, provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the carburetor or fuel-injection system, and the ignition system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, HFT will repair your engine at no cost to you including diagnosis, parts and labor.

Manufacturer's Warranty Coverage

The 1995 and later engines are warranted for two (2) years. If any emission-related part on your engine is defective, the part will be repaired or replaced by HFT.

Harbor Freight Tools Emission Control Defects Warranty Coverage

Engines are warranted for a period of two (2) years relative to emission control parts defects, subject to the provisions set forth below. If any emission related part on your engine is defective, the part will be repaired or replaced by HFT.

Owner's Warranty Responsibilities

- As the engine owner, you are responsible for the performance of the required maintenance listed in your Owner's Manual. HFT recommends that you retain all receipts covering maintenance on your engine, but HFT cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- As the engine owner, you should, however, be aware that HFT may deny you warranty coverage if your engine or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.
- You are responsible for shipping your engine to a HFT warranty station as soon as a problem exists. Contact the HFT Customer Service department at the number below to make shipping arrangements. The warranty repairs should be

completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact the Harbor Freight Tools Customer Service Department at 1-800-444-3353.

Harbor Freight Tools Emission Control Defects Warranty Provisions

1. Length of Coverage

HFT warrants to a first retail purchaser and each subsequent purchaser that the engine is free from defects in materials and workmanship that cause the failure of warranted parts for a period of two (2) years after the date of delivery to the first retail purchaser.

2. No Charge Repair or Replacement

Repair or replacement of any warranted part will be performed at no charge to the owner if the work is performed through a warranty station authorized by HFT. For emissions warranty service, contact the HFT Customer Service Department at 1-800-444-3353.

3. Consequential Damages Coverage

Coverage under this warranty shall also extend to the failure of any engine components caused by the failure of any warranted part while it is still covered under this warranty.

4. Coverage Exclusions

Warranty claims shall be filed in accordance with the provisions of the HFT warranty policy explained in the box at the top of the previous page. HFT shall not be liable for any loss of use of the engine, for any alternative usage, for any damage to goods, loss of time, or inconvenience. Warranty coverage shall also be excluded for any part which fails, malfunctions, or is damaged due to failure to follow the maintenance and operating instructions set forth in the Owner's Manual including, but not limited to:

- a) Use of parts which are not authorized by HFT
- b) Improper installation, adjustment or repair of the engine or of any warranted part unless performed by an authorized warranty center
- c) Failure to follow recommendations on fuel use contained in the Owner's Manual
- d) Improper or inadequate maintenance of any warranted parts
- e) Repairs performed outside of the authorized warranty service dealers
- f) Alterations by changing, adding to or removing parts from the engine.

5. Service and Maintenance

Component parts which are not scheduled for replacement as required maintenance or are scheduled only for regular inspection to the effect of "repair or replace as necessary" are warranted for the warranty period. Any warranted part which is scheduled for replacement as required maintenance is warranted for the period of time up to the first scheduled replacement point for that part. Any replacement part, provided it is equivalent in durability and performance, may be used in performance of maintenance or repairs. The owner is responsible for commissioning a qualified technician/mechanic to perform all required maintenance, as outlined in the Inspection, Cleaning, and Maintenance section in this manual.

6. Warranted Parts

1) Fuel Metering System

- i) Carburetor and its internal parts.
- ii) Fuel pump (if so equipped).
- iii) Cold start enrichment system.

2) Air Induction System

- i) Intake pipe/manifold.
- ii) Air cleaner.

3) Ignition System

- i) Spark plug.
- ii) Magneto ignition system.

4) Catalyst System (if so equipped)

- i) Exhaust pipe stud.
- ii) Muffler.
- iii) Catalytic converter (if so equipped).

5) Miscellaneous Items Used in Above Systems

- i) Vacuum, temperature and time sensitive valves and switches.
- ii) Hoses, belts, connectors, and assemblies.